DOCUMENT RESUME

ED 161 423 IR 006 264

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TITLE CAI and Developmental Education.
PUB DATE Mar 78
NOTE 7p.; Paper presented at the Annual Meeting of the Association for the Development of Computer-Based Instructional Systems (Dallas, Texas, March 1-4, 1978); For related document, see IR 006 231

EDRS PRICE MF-$0.83 Plus Postage. HC Not Available from EDRS.
DESCRIPTORS *Basic Skills; *College Instruction; *Computer Assisted Instruction; *Computer Based Laboratories; Course Evaluation; *Instructional Design; *Instructional Systems; Language Skills

ABSTRACT

This paper discusses the problems and achievements of computer assisted instruction (CAI) projects at University College, University of Cincinnati. The most intensive use of CAI on campus, the CAI Lab, is part of the Developmental Education Center's effort to serve students who lack mastery of basic college-level skills in mathematics and English. The CAI Lab serves as resource to faculty members wanting to develop or use CAI units. Two areas in particular have caused problems and concern: financial difficulties and program justification. A comprehensive report on one particular course, "irreg" (irregular verb forms), was produced and is presented here under the following headings: student evaluation and analysis, and system performance (based on the CAI Lab log) and analysis. (VT)

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CAI AND DEVELOPMENTAL EDUCATION

by

Rick Anderson

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IR006264

CAI and Developmental Education

-University College, University of Cincinnati

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equipment: 3270's and Telrays

language - CW III, version 3

I prefatory remarks - This project paper from the CAI Lab of the University College, University of Cincinnati, is intended to accomplish three tasks at the national conference in Dallas and in the Conference Proceedings: 1) aiding other CAI-users by showing our struggles and achievements, particularly in the area of justification; 2) furthering contacts with other people who have CAI-courses to exchange; and, perhaps most importantly, 3) providing a general benevolent catharsis, telling our pride of accomplishment, venting our frustrations!

II overview - CAI has been at U.C. only since 1970. The writer was engaged in the initial implementation, in the area of German, and learned that good course material isn't sufficient. In order to succeed for the duration, a CAI-project needs to have a broad base not only of faculty support, but also actual faculty involvement.

The second major U.C. CAI-project has turned out to be more lasting. At present the most intensive use of CAI on campus, the CAI Lab is an administrational part of the University College Developmental Education (DE) Center's effort to serve students who for a variety of reasons lack mastery of certain college-level skills. Two sets of CAI-courses focus on the "meat and potatoes" of any DE curriculum, basic mathematics and English.

Open sixty hours a week, the CAI Lab last year serviced a total of about 300 students a quarter in these courses.

CAI Lab Director Mike McSwigan of the University College Department of Mathematics runs the "CAI-Math Lab," which offers three choices to math students. Those who are taking the DE course Basic Math can enroll in a CAI-course for one-hour credit. There they will receive a thorough review of fundamentals as a supplementary to the classroom course. Second, students can take entirely by computer the standard three-credit University College course, Introduction to General Statistics. As a benefit of CAI, they can work on it as their schedules dictate, and their movement through the course is individualized. Increasing numbers of students from other colleges have been enrolling. Third, a number of students enroll in a variety of CAI-precalculus courses, voluntarily or at the behest of their instructor. These constitute "brush-up" tutorials for the students, some of whom come from other colleges. No academic credit is involved. And, finally, student proctors in the CAI Lab offer some limited "human" tutoring services to students.

The writer of this paper administers the English program of the CAI Lab. I have developed two CAI-courses for it, complete with pretest, programmed drills and posttest: irreg, on the 125 irregular verbs (e.g., "to do," a chronic problem for dialect speakers); and spell, on community college freshmen's common spelling errors. The English CAI-program has been run in conjunction with the DE Center's Writing Lab. The student who enrolls in the DE course English for Effective Communication has class four times a week. Two of these are spent in the Writing Lab, where tutors guide him or her through comprehensive programmed grammar instruction and the instructor is freed to tutor composition individually. The students then are referred to the CAI Lab for CAI-English at certain pre-determined points in the Writing Lab instruction. With this working arrangement now fairly well established after two years, we are beginning to offer these CAI-

courses to other University College English students.

The CAI-Lab serves as resource to faculty members wanting to develop or use CAI-units. For example, one professor in the College of Education is running this year a CAI-seminar for graduate students and teachers-in-training. He is using our facility and personnel as part of his course. And during the last academic year the Lab had a graduate assistant who, among other tasks, entered English programs onto the system.

Understandably enough, this type of large university student service requires a great deal of instructional and faculty development. For instance, college CAI-English is relatively undeveloped and unaccepted, compared to mathematics and the other scientific disciplines. Thus, we could borrow CAI-math courses from Kansas City and our colleagues at Akron, while there exists a shortage of readily and inexpensively available CAI-English courses, even nationally. We have had painstakingly to develop our own and to set up exchanges with a few other institutions, like Fox Valley in Wisconsin and Rhode Island Junior College.

Two areas in particular have caused problems and concern. Financial difficulties are on-going and inextricably connected with the current dilemma of higher education. U.C. has just converted from the last municipal university in the country to a state institution, for that very reason. (The irony of it is that it doesn't seem to have helped!) A second problem, quite common to CAI-users, is justification. Since CAI-English at U.C. has at first been a subordinated part of the whole DE program, accountability to more than one administrator has been the case. Too hasty judgements from too narrow a perspective occurred, primarily from a lack of experience, time and openness on the part of a secondary administrator. These doubts concerning CAI-English were passed on orally. However, several careful and thorough

written reports to all faculty and administrators (one of which is summarised below) negated the unsalutary effects. The hard data in these reports on student evaluation, progress and usage also gave the computer center helpful systems information. The latest sign of our growing support is that the first issue of a University College newsletter on instructional development has featured the CAI Lab with a cover-photo and article.

Pedagogically exciting student service and instructional and faculty development--these three essential elements define the efforts of the CAI Lab as part of the DE Center, the University College and the University of Cincinnati, as a whole.

III report - A comprehensive report on irreg was produced at the end of the academic year 1976-77. It was based on student evaluations and usage in the winter quarter. Approximately 100 students took the course; 55 returned the evaluation forms.

STUDENT EVALUATIONS - Most students found appropriate:

1. the sentences and vocabulary
2. the course content
3. the presentation method
4. the course tests

They would like to take more CAI courses on similar topics and would recommend irreg to their friends. Seventy-nine percent of the student evaluated never, or at most once, had difficulty operating the terminal. Eighty-two percent never, or at most once, had to wait a long time for responses from the computer. Seventy-five percent never, or at most once, were interrupted at the terminal by computer breakdowns ("down time"). Seventy percent found the lab proctors very helpful in terminal registration and problems.

ANALYSIS OF STUDENT EVALUATIONS - Except for two questions, the findings were significant to .001, using chi-square analysis. The language of the

invalid questions were altered; technical terms confused the students. A significant minority of the students evaluated the course as "easy." They will be advised in the future to take the posttest immediately, as is possible in the course, and avoid the drills. If this suggestion doesn't work, the course posttest will be made more difficult.

SYSTEM PERFORMANCE (based on the CAI Lab log) - Irreg was supposed to be available ("on line") to EEC students a total of 420 hours. Thirty-nine hours (9%) of that total were interrupted by system problems, i.e., the computer was down or some other sort of technical problem interrupted the instruction.

ANALYSIS OF SYSTEM PERFORMANCE - Two factors were present that contributed significantly to down-time. One was technical problem with telephone connections and was corrected. The CAI Lab log showed a marked decrease in down-time after the repair date. The other was a long-standing strain on the central computer (an Amdahl 470/V6, equivalent to an IBM 370/168) at certain busy hours of the afternoon, due to time-sharing. While this problem has been more difficult to correct, it was helpful to note that the hasty criticism mentioned above arose partly because that particular administrator was only around at those hours!

The evaluation questionnaire and the complete version of the report discussed are available to all who are interested. Combined with the comprehensive log the CAI Lab proctors maintain, they provided a strong base for justification of the facility.